Specification Amendments

Please amend the specification on lines 10-18 as follows:

~~Figure 26 is a descriptive outline view of features of the intelligent vehicle.~~

Figure ~~27~~ 26 is a descriptive schematic view of the present intelligent vehicle.

Figure ~~28~~ 27 is a descriptive schematic view of the present intelligent vehicle.

Figure ~~29~~ 28 is a descriptive schematic view of the present intelligent vehicle in relation to open road safety.

Figure ~~30~~ 29 is a descriptive schematic view of the present intelligent vehicle in relation to open road safety.

Figure ~~31~~ 30 is a descriptive schematic view of the present intelligent vehicle in relation to warnings.

Please replace the original drawings (Figures 1-31) filed on October 26, 2003 with the attached set of replacement drawings (Figures 1-30).

Please insert the following text between lines 7-8 on page 44 of the specification:

Voice, video, and data transmissions from monitoring sensors are fed into computer-based decision support algorithms which will analyze the received transmissions from all sources and advise or initiate appropriate predetermined response plans.

A transmitter can be a radio transmitter configured to broadcast a limited range warning signal at a selected frequency. The selected carrier frequency can be broadcast at a dedicated emergency frequency or can be broadcast across a shared frequency. The transmitters can include signal modulation and control elements, such as attenuators, hybrids, circulators and isolators, so that the range of the signal can be increased or decreased and the broadcast pattern (signal detection) can be changed depending on factors such as the speed of the vehicle transmitting the warning signal and the traffic and weather conditions.

A receiver can be connected to the starting mechanism of a vehicle such that the receiver is turned on (active) whenever the vehicle is in operation.

Warnings originate from a transmitter worn or carried by an individual, infrastructure-based components and in-vehicle components. Warnings of impending collisions are displayed, sounded, illuminated, and advised by interactive voice response communications. Any built in sound system in operation within a vehicle will automatically become inaudible when an in-vehicle broadcast is sounded. Interactive voice response communications can utilize the same sound system.

Automatic vehicle anti-skid system is the dispensing and broadcasting of anti-skid chemicals and particles around

and over the tires and around and under the vehicle, as needed.

A processor interacts with and manages collision avoidance systems, GPS, computer telephony, and safety readiness, and triggers vehicle-control intervention as safety dictates.

Computer algorithms employing artificial intelligence capabilities will be used to recommend response plans based on input incident characteristics and, in many cases, will "learn" over time which action works best. Computer simulation modeling can also be used to predict potential incidents and incident response impacts ahead of time.

On-line speed limit is the continuous, dynamic in-vehicle display of the local speed limit. Optionally, the vehicle's maximum speed is governed to the local on-line speed limit.

Radar and sensor-based systems feed into computer-based decision support algorithms, gathering and relating information such as speed, mass, direction of the vehicle in danger of being hit and the threatening vehicle, and the number, location, and major physical characteristics of the vehicle occupants and, further, activate vision enhancement, determine if pre-collision safety restraint systems will be deployed, determine if vehicle anti-skid system will be activated, and determine if vehicle-control intervention will be activated to avoid an imminent collision or its severity.

The determination and the activation of each of the above can be initiated by the infrastructure, involved vehicles, and the intelligent walking stick.

Automatic vehicle-control intervention includes temporary, full or partial, control of a vehicle's throttling, braking, and steering, assistance in appropriate

maneuvers, and the disallowing of dangerous moves, including vehicle shutdown. Automatic vehicle-control intervention systems work in combination and include radar and sensor based systems, global positioning systems, navigation and communication technologies, automatic vision enhancement, on-line speed limit displays and speed limit controls, computer telephony, safety readiness, and warning systems.

Automatic vision enhancement is implemented thru in-vehicle and on-person sensors capable of imaging and sensing the outside scene, dynamically overlaying the sensed and imaged scene on the front windshield, on in-vehicle displays, on the glasses of the visually impaired, and providing information through interactive voice response communications. Vision is enhanced both night and day and under all weather conditions. Both active and passive technologies can be applied to improve the perceptual abilities of drivers and the visually impaired. GPS-based computer representations enhance a driver's visibility even when snow and fog obscure the actual view. Regular charged-couple-device cameras are employed for visual enhancement when an external light source is used to extend their visibility band.

Computer telephony provides interactive voice response communications, messages on local variable signs and on in-vehicle displays, as well as telephone, voicemail, audible/visible e-mail, audible/visible fax, data/voice integration, and PC-based call-processing. Database messages are subject to a pattern-matching rules engine that assigns messages to categories and to the proper expertise groups, attaching the suggested responses. A response is then produced (or perhaps a collaborative response is crafted.)

Safety readiness warning systems monitor vehicle malfunctions affecting safety, a driver's psycho-physiological condition, advise a driver who is not safety-ready of his abnormal driving performance (as compared to driver's baseline performance), enhance perceptions of the driving environment, provide additional information about potential safety hazards, warn of impending collisions, assist in making appropriate vehicle maneuvers, and intervene with automatic controls and vehicle shutdown. Nearby vehicles, pedestrians, and law enforcement are warned, emergency flashing lights at intersections and in-vehicle emergency flashing lights are activated, and nearby traffic signals are all changed to "red" (stop) until vehicle is brought under control.

Sensors monitor a driver's psycho-physiological condition, including heart and respiratory rates, electrodermal activities, blink rates, head nodding, lane changes, changes in the use of accelerator and brake pedals, and other abnormal behavior, as compared with the driver's baseline performance, feeding into computer-based decision support algorithms which initiate vehicle-shutdown when a driver falls asleep, is intoxicated, taken ill, or safety dictates. Vehicle becomes temporarily inoperable.

Through interactive voice response communications, in-vehicle emergency flashing lights, messages and other warnings, a driver attempting to pass another vehicle on a two-lane highway, for example, is warned when sensed and imaged information and data feed into computer-based decision support algorithms and determine the risk of a head-on collision is too great or imminent. Vehicle-control intervention is automatically invoked.

The transmitter on a vehicle indicates when a lane change is being initiated, issuing an electronic notification of the intent to adjacent vehicles.

Transmitted signals are received from advancing and threatening vehicles and trains. Global positioning satellite navigation systems are used to locate the position of a threatening vehicle. If necessary, vehicle-control intervention is automatically invoked by either vehicle.

Automatic vision enhancement and electronic tags can make parked cars, obstacles, pedestrians, etc., visible when glare from sunlight or on-coming headlights adversely affect a driver's vision.

Electronic notification is initiated between vehicles approaching an intersection which has no traffic signals or other traffic controls. Optionally, protocols determine which vehicle shall proceed first, and vehicle controls will activate to assure protocols are observed, if necessary.

Infrastructure provides an electronic path that guides vehicles to keep them in their respective lanes. Assistance in appropriate maneuvers and vehicle-control intervention improve safety and disallow dangerous moves, employing GPS, GPS steering, vehicle shutdown, deceleration, braking, and automated vision enhancement. Drivers can override GPS steering.

The GPS-based computer representation enhances the visibility of pavement edges, pavement markings, pedestrians, etc.

Vehicles slow down, as necessary, when forward-looking radar senses and displays slippery conditions ahead on in-vehicle displays [or audibly] and on local variable message signs by automatically decelerating and braking. Brake lights come on. Optionally, vehicles automatically dispense anti-skid particles and chemicals as necessary.

Meteorological sensors predict weather conditions and automatically, dynamically, change "on-line" posted speed limits (shown on in-vehicle displays), as weather, visibility, and road conditions warrant.

Automatic vehicle counts, continuously updated, produce appropriate information and advisories on local variable message signs and on in-vehicle displays (or audibly) that facilitate traffic control, incident management, and route guidance.

Electronic signals between vehicles warn when a vehicle is dangerously close to another vehicle, relative to their respective speeds. As warranted, the trailing vehicle that is advancing unsafely fast or close automatically decelerates and brakes (brake lights come on) (automatic vehicle-control intervention) until a safe distance, relative to the speed of the vehicles is achieved. Optionally, the "safe distance" system can be activated and deactivated at a specified low speed.

Sensing is to the front, sides, and rear of a vehicle and information is gathered regarding the distance to and relative velocity of adjacent vehicles and other potential collision hazards such as objects, pedestrians, and animals.

A vehicle which is or becomes too dangerous to drive is automatically shutdown and rendered temporarily inoperable. Advance warnings, when possible, are displayed on the in-vehicle display, in-vehicle emergency flashing lights, and audibly.

A sensor is a device that converts measurable elements of a physical process into data meaningful to a computer. A sensor-based system is an organization of components including a computer whose primary source of input can be used to control the related physical process.

Decision support algorithms are a finite set of well-defined rules for the solution of a problem in a finite number of steps.

The present invention enhances dynamic vision of imaged and scanned scene, when warning signals are received, by automatically zooming in on the area of danger.

The present invention employs global positioning satellites to provide coordinates of the immediate scene and permit the precise mathematical correlation of the surrounding scene and earth science data and automated vision enhancement.

In-vehicle displays can be built into a visor, dashboard, windshield, etc., or installed monitor.

Warnings originate from a transmitter worn or carried by an impaired or disabled person and by infrastructure-based components and in-vehicle components. A processor, in turn, triggers a safety system to take control of the threatening vehicle when an accident is imminent.

The present invention employs in-vehicle displays, local variable message signs, emergency flashing lights, broadcasting, interactive voice response communications, and video monitors to warn of danger and to instruct.

In-vehicle display messages are received (also audibly) when a vehicle is malfunctioning and in need of service.